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## A FURTHER NOTE ON KERATOSUM COMPLEXUM.

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In my original description of this anomalous hydroid,<sup>1</sup> it was stated that not only was it necessary to create for it a new genus as well as species, but that there "might be the necessity of establishing for it a new family." It was further said: "Concerning the family relations I am not disposed in this connection to enter into any critical review. While the Perisiphonidæ would be the only one under which it might be placed, still this family as at present defined . . . would by no means provide for the species. For example, while there is an axial tubular mass, as shown in Fig. 9, there is no single one of these which bears the hydrothecæ as called for by the definition referred to. However, the species may be left under this family till such time as adequate revision may be undertaken, when needed modifications may be provided."

I have since found access to a paper by W. Baldwin Spencer, entitled "A New Family of Hydroidea, Together with a Description of the Structure of a New Species of Plumularia," published in *The Transactions of the Royal Society of Victoria*, 1890, a publication of very limited circulation. Had this account been available to me at the time of my perplexity concerning the family relations of *Keratosum* it would have greatly facilitated my insight into many features which were extremely puzzling. I take the first opportunity to add to my earlier account what seems to be a solution of the point left in abeyance pending further knowledge.

Spencer established the family Hydroceratinidæ for a rather remarkable hydroid obtained from Port Phillip having much in common with *Keratosum* in both structure and habit, though with very sharp differences, the details of which need not be given here since only the matter of its family features are in question. One interesting point of coincidence may be cited, namely, that Baldwin at first referred his specimen to the family

<sup>1</sup> BIOL. BULL., Vol. XVII., p. 379.

Ceratelladæ, Gray, thought to belong to the sponges, but later recognized as hydroids. Further comparison convinced the author that his species could not be included under the Ceratelladæ, hence his institution of the Hydroceratinidæ. The following is his definition of the family:

“Family HYDROCERATINIDÆ.”

“Hydrophyton consisting of a mass of entwined hydrorhiza, with a skeleton in the form of anastomosing chitinous tubes: the surface is studded with tubular hydrothecæ, into which the hydranths can be completely retracted. Hydranths sessile and connected with more than one hydrorhizal tube, claviform with a single verticil of filiform tentacles. Defensive zoöids present with a solid entodermal axis and nematocysts borne at the distal end.”

To one who has any considerable knowledge of hydroid morphology it will hardly be necessary to point out the more obvious features in this definition which directly or approximately embody corresponding features as described in the account of *Keratosum*. There are, however, certain points in which I am not certain that the definition of Hydroceratinidæ would wholly apply to *Keratosum*. For example, it is stated that “hydranths [are] connected with more than one hydrorhizal tube.” I have directed attention to the complex anastomoses of the siphonal (this term seems more accurate than Spencer’s hydrorhizal) tubes but I have not been able to confirm the condition diagrammatically portrayed by his Figs. 3 and 13. It must be noted, however, that my material was not in that vital condition rendering easy and certain the demonstration of a point like the one in question. Still the tubular and hydrothecal relations were such as to render it perfectly sure that the conditions figured by Spencer are lacking in *Keratosum*.

But with this difference granted it does not seem sufficiently great to vitiate the many points of agreement which are more fundamental and characteristic as family features. There are also apparent differences as to the nematophores of the two species, yet these are rather specific than even generic and may be disregarded in this connection. Furthermore, there is not in

*Keratosum* any tendency toward a bilaterality in the growth habit such as described for *Clathrozoön wilsoni*. But here again we have a feature which need hardly be considered incompatible in the family aspects of the species. One finds such differences of aspect in genera and species of Gorgonidæ, to which *Clathrozoön* bears some superficial resemblance. I am constrained to believe that in its family relations *Keratosum* is more closely akin to Hydroceratinidæ than to any existing family of *Hydrozoa*, and am quite prepared to propose that it be so designated, at least until stronger reasons are found for a different disposition.

In closing, attention may be called to a still further coincidence between *Keratosum* and *Clathrozoön*, namely, the absence in both of any trace of reproductive organs. I had already emphasized this in the original description of *Keratosum*, stating that while an absence of germ cells might call for no surprise, yet "if gonangia are an organic part of the skeleton one might expect some trace of them, . . . but none could be recognized."

This further inquisition into the morphology of these hydroids tends to confirm and emphasize what had been said in concluding my original description, that "we have in this hydroid one of the most interesting, and in some ways anomalous, of this remarkable group of organisms." The foregoing comparison of the species with that from Australia, *Clathrozoön wilsoni*, tends to further accentuate this impression.

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